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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/979,508

11/23/2001

Toshinobu Hirayama

011575

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08/25/2004

ARMSTRONG, KRATZ, QUINTOS, HANSON & BROOKS, LLP  
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WASHINGTON, DC 20006

EXAMINER

UMEZ ERONINI, LYNETTE T

ART UNIT

PAPER NUMBER

1765

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/979,508

Applicant(s)

HIRAYAMA ET AL.

Examiner

Lynette T. Umez-Eronini

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 12-30 is/are pending in the application.
- 4a) Of the above claim(s) 15-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) 27-30 is/are allowed.
- 6) ☒ Claim(s) 12-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This communication is in response to applicants' amendment filed on June 2, 2004.

#### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 12, line 4, "the total content" lacks antecedent basis.

In claim 12, line 5, "the remainder" lacks antecedent basis.

#### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 12-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al. (US 6465359 B2).

Yamada teaches, "... the present invention utilizes a mixture of C<sub>5</sub>F<sub>8</sub> (same as applicant's gas for plasma reaction) in combination with a carrier gas and at least one of CO and O<sub>2</sub>. It is preferred that the C<sub>5</sub>F<sub>8</sub> gas be of very high purity--in the range of greater than 97% pure and preferably at least 99% pure" (column 12, lines 31-43) and "It is also possible to add carrier gases which do not react with the substrate being processed; the carrier gases including Ne, Kr, Xe, He, Ar, N<sub>2</sub>, etc." (column 7, lines 27-31), which reads on,

An etchant gas comprised of octafluorocyclopentene characterized in that the gas has a % purity by volume.

Yamada differs in failing to teach octafluorocyclopentene having a purity of 99.9 % by volume the total content of nitrogen gas and oxygen gas, contained as trace gaseous ingredients of the remainder, is not larger than 150 ppm by volume, **in claim 12**; and is characterized as having a moisture content of not larger than 20 ppm by weight, **in claim 13**.

It is the examiner position that it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to employ a gas comprising the % by

volume purity of octafluorocyclopentene and a total content of nitrogen gas and oxygen gas, contained as trace gaseous ingredients of the remainder and contained in said trace gaseous impurities because the reference of Yamada et al. (US 6,465,359) suggests that a high purity is desirable. One of ordinary skill would be motivated to obtain the highest purity possible.

#### ***Allowable Subject Matter***

6. Claims 27-30 are allowed.
7. The following is an examiner's statement of reasons for allowance: As to claims 27-30, the prior art of record fails to suggest, teach or render obvious a gas consisting of octafluorocyclopentene having a purity of at least 99.9% by volume and no more than .1% trace gaseous impurities, wherein a total content of nitrogen gas and oxygen gas contained in said trace gaseous impurities, is not larger than 150 ppm by volume, in combination with the other limitations of the said claims.

#### ***Response to Arguments***

8. Applicant's arguments filed June 2 2004 have been fully considered but they are not persuasive. Applicants traverse the 103 rejection of claims 12-14 over Yamada (US 6,456,359) as failing to teach a 99.9%% by volume of octafluorocyclopentene and the total content of nitrogen gas and oxygen gas, contained as trace gaseous ingredients of the remainder is not larger than 150 ppm by volume. It is noted that Yamada fails to teach a purity of at least 99.9%by volume octafluorocyclopentene and specify the

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content of nitrogen and oxygen gas of not larger than 150 ppm by volume. However, Yamada teaches a mixture of  $C_5F_8$  (same as applicant's gas for plasma reaction) in combination with a carrier gas and at least one of CO and  $O_2$ . It is preferred that the  $C_5F_8$  gas be of very high purity--in the range of greater than 97% pure and preferably at least 99% pure" (column 12, lines 31-43) and "It is also possible to add carrier gases which do not react with the substrate being processed; the carrier gases including . . .  $N_2$ , etc." (column 7, lines 27-31), which suggests a high degree of purity is desirable. Hence, one having ordinary skill in the art at the time of the claimed invention would have been motivated to obtain the highest purity possible.

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 571-272-1470. The examiner is normally unavailable on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Itue

August 17, 2004

NADINE G. NORTON  
SUPERVISORY PATENT EXAMINER

